

D R A F T

DEVELOPMENT OBJECTIVE

MATERIALS HANDLING STUDY (NON-DIGITALLY STORED DATA)

1. INTRODUCTION

1.1. Purpose. This development objective contains the background, concept, and scope of a Government sponsored study and development program to improve the handling of non-digitally stored information and material used in the NPIC imagery exploitation process.

1.1.1. For the purposes of this document, the words "information," "material (i.e., substantive information in ^{hand} ~~hand~~ copy form)," and "data" are intended to mean that "information," "material," and "data" which is not suitable for digital processing, storage, and retrieval.

1.2. Background. Current and anticipated increases in the volume of ~~imagery and~~ collateral data inputs to NPIC make desirable a study to determine if more rapid and more efficient methods of screening, handling, storing, updating, and accessing these materials can be developed. It is currently estimated that there are between 1,000,000 and 2,000,000 separate items on hand (e.g. 1,250,000 maps and charts, 75,000 reports, 150,000 photographs, 20,000 books and magazines, 50,000 to 100,000 other miscellaneous indexes and files), ~~and an indeterminate number of randomly selected pieces of cut film.~~ The manual methods used for handling (i.e., reproducing, retrieving, controlling, and transporting) these items are unwieldy and time

consuming. It is believed that some form of automation to handle those materials will improve the efficiency and cost effectiveness of ^{current} center operations. ^{It is also believed that} future increases in the volume of acquired imagery and supporting data, ^{will} ~~it is believed~~ ^{an} require extensive streamlining of present procedures.

2. CONCEPT

2.1. Purpose. The planned program will encompass the identified problem areas and suggest additional problem areas through the investigation and analysis of current procedures, recommendations for possible detailed alternate solutions, and the establishment of practical and feasible current and future automation levels. Ultimately, the results of these studies will be used to develop and install appropriate instrumentation and procedures to minimize the problems in handling of information and data.

2.2. Scope. The total program, as envisioned, will be divided into the following three separate but interrelated phases. Proposals solicited hereunder are to be restricted to the tasks outlined in Phase I (Paragraph 2.2.1.) and Phase II (Paragraph 2.2.2.). Phase III (Paragraph 2.2.3.) is included as a matter of information and as an aid in developing the material required under Phases I and II.

2.2.1. Phase I, Investigation and Analysis. The contractor will thoroughly investigate, review and analyze ² current procedures for handling the various forms of material and data within NPIC, determine the requirements for such material and data in terms of quality, volumes, response times, search strategies, flows etc., generate alternative

conceptual plans for systems to satisfy these requirements, and evaluate the alternatives in accordance with the criteria outlined in Paragraph 3.1.1.

2.2.1.1. The conceptual plans should include recommended solutions to the material and data handling requirements^{ants} identified during the investigation, and as a minimum must consider the following problem areas:

- (a) Means of improving access to, updating, and distributing textual collateral data.
- (b) Methods for selecting, controlling, retrieving, reproducing, and ^{collateral photography} ~~disseminating imagery derived from previous coverage irrespective of sensor or collection method.~~
- (c) A method for storing, retrieving, and displaying maps and charts in support of the photographic interpretation effort.
- (d) Techniques for automatically producing, updating, storing, retrieving, and displaying mission coverage plots and mosaics.

~~(e) Methods for reproducing, storing, retrieving, controlling and utilizing cut film or film chips.~~

2.2.2. Phase II, System and Equipment Definition. Based on the conceptual plan resulting from the study in Phase I, alternate techniques for implementation of the conceptual design.

will be developed and evaluated. The report on this phase will include a thorough analysis and comparison of all alternates considered, i.e., rejected proposed alternates will be discussed as well as the alternate system which is deemed most desirable. The report will be both quantitative ^{and qualitative} in measuring one proposed alternate against the other and in demonstrating the amount of improvement each alternate could achieve over the present system. The use of aperture cards, microfiche, closed-circuit TV, and other known methods of storing, retrieving, and disseminating data should be considered in developing the alternate systems. A detailed system plan based on the selected alternate should be prepared and should include system and equipment parameters, implementation time, impact on operational and using components of the center, personnel and personnel training requirements, and the estimated costs of the proposed system for development, installation, and operation.

2.2.3. Phase III, Equipment Development, Acquisition and Installation. Utilizing the specifications generated under Phase II, it is the intent of the Government to solicit proposals for a modern materials and data handling system. Proposals will include equipment modification, development, phase-in, installation, check-out, and training of personnel. It should be reiterated that Phase III is discussed here for information and guidance only and is not to be included in the proposal.

3. REQUIREMENTS

3.1. Phase I Objectives. Two major reports stemming from the Investigation and Analysis Phase (Paragraph 2.2.1.) are to be delivered. The first report is to cover the contractor's analysis of NPIC processes and the identification of requirements for information utilized by NPIC, which will not be handled in the digital system. The second report is to present the alternate conceptual designs generated by the contractor to meet the identified requirements.

3.1.1. In developing the alternative conceptual designs the following criteria will be utilized for evaluation purposes. Current procedures should also be evaluated, utilizing the ^{se}~~following~~ criteria, so that judgment can be made as to the amount of improvement the implementation of the proposed concepts are designed to achieve.

(a) Form and Organization of Information. A measure of how adequately the form, organization, and content of the information agrees with that required by the users for optimum performance of their functions.

(b) System Performance. Time from receipt of information into the system until it is available to a user and length of the time from query to response.

(c) Reliability. Consistency of expected performance and ability of system to perform major functions in event of individual component failure.

- (d) Ease of Phase In. An indication of the amount of disruption of Center activities during implementation of the system.
- (e) Expansibility. Difficulty (time and cost) of adding to the system to meet increased demands.
- (f) Flexibility. Ability of system to handle new or unexpected demands.
- (g) Compatibility. A measure of the ability of the system to function harmoniously with the automated and non-automated systems within and external to the Center.
- (h) Facility Requirements. The need for unusual site preparation, utilities, communication circuits, etc.
- (i) Personnel Requirements. The number and skill types required for system operation.
- (j) Total System Cost. This includes all initial and operational costs. Initial implementation costs should be separated from the predicted annual operating costs.

3.3. Phase II Objectives. Three reports are to be delivered under the System Equipment Definition Phase (Paragraph 2.2.2.). The first report covering item (a) below, will include the comparison of alternates mentioned in Paragraph 2.2.2. and will utilize the same criteria (Paragraph 3.1.1.) for comparison specified for the comparison of concepts in Phase I. The second report covering item (b) below will be such that it is suitable for use on a basis of a request for a proposal directed toward Phase III (Paragraph 2.2.3.) without extensive rewrite

or modification. The third report will cover item (c) below.

(a) Development and evaluation of alternate methods for accomplishing the functions of the system defined by the conceptual design resulting from Phase I. Alternate methods for accomplishing the major subsystem tasks will be evaluated and reported upon, as well as alternates for accomplishing the overall system functions.

(b) Establishment of a detailed system configuration, including overall operation, description and detailed specifications of system components, and component interfaces. Detailed specifications should be divided into logical subsets to permit use of multiple sources for Phase III.

(c) Preparation of a detailed implementation plan (PERT) for the system. Budgetary costs and schedules for procurement and installation of equipment, facilities preparation, system testing, and personnel training should be included.

4. GENERAL

4.1. Computer Interface. Inasmuch as NPIC operates a central computer system, it is mandatory that all listing, indexing, and control functions to be performed under the proposed plan be compatible with the existing computers.

4.2. Proposals. The proposals should be comprehensive, well organized, explicit, clear, concise, and limited in content to that information required to qualify the prospective bidder and demonstrate ability to perform satisfactorily within the scope of this document. The format of the proposal should be arranged to separate company and personnel

qualification sheets from the main body of the proposal.

4.2.1. Delivery. While it is the wish of the Government to accomplish the aims of this program as expeditiously as possible, sufficient time should be allotted for a thorough and complete accomplishment of the aims set forth herein. Tentatively it is envisioned that the following time spans will be allotted to the various phases.

Phase I - Six months (Report covering NPIC analysis to be delivered after 3 months.

See Paragraph 3.1.

Phase II - Six months to twelve months

Phase III - Twelve months

4.2.1.1. Adequate time (approximately four weeks) shall be allowed for Government review and checking following the issuance of each report (both interim and final), required under this program since in each case the content of the reports will form the basis for subsequent work.

4.2.1.2. As a result of Government review, a limited amount of revision and rewrite may be required. Proposals submitted here under should include provisions for this contingency.

4.2.2. Costing. Cost proposals should be presented in such a manner that the cost of Phase I can be readily separated from the cost of Phase II.

4.3. Program Interface. Although the work to be performed under the terms of this document is confined to the development of a non-digital material handling system, interfaces will exist between this program and other studies underway within NPIC. It is anticipated that liaison between the contractor selected for this program and the contractors conducting related internal studies will be such that this program will result in a compatible and integrated system.

4.4. Administration. The Government will retain overall control of this program. Written approval from the contracting officer must be obtained before any changes in objectives, costs, or priorities are effected or before any subcontractor or consultant is employed.

4.5. Contractor Responsibility. The contractor is expected to provide competent and cooperative administrative service. He will be vested with certain authority to control the direction and degree of technical effort within the bounds of the estimated costs. As a part of his overall responsibility, the contractor will be responsible for the work performed by all of his subcontractors and consultants. The fact that the Government has granted approval of the use of a specific subcontractor or consultant (See Paragraph 4.4.) in no way relieves the contractor from this responsibility.

4.6. Technical Representatives. The contracting officer will designate a technical representative to authorize specific development efforts of the contractor. Such authorization shall be given in writing in its original form or in confirmation of an oral authorization. The contractor will accept no other authorization except that of the technical representative or contracting officer.

4.7. Reports. ^{lar}Regular reports will be required throughout the life of the contract. All reports will meet the basic requirements of specification DB-1001, date 31 August 1966, GENERAL REQUIREMENTS FOR CONTRACTUAL DOCUMENTATION, attached hereto.

4.7.1. Monthly Progress Reports covering each specified phase or subphase of this program will be submitted.

4.7.2. Final Reports will be submitted as indicated and will contain the information described under each Phase of this program.

4.7.3. Detailed Specifications submitted under Phase II will conform to documentation standards mutually agreed upon by the Technical Representative and the Contractor.